



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

affect green fruit, and suggests that one means of avoiding the former "is to maintain the health and increase the vigor of the plants by judicious breeding."

Botanical News.—Fascicle V. of Millspaugh's "American Medicinal Plants" was delivered to subscribers a month or two ago. Like the preceding fascicles, this one contains thirty plates, all of which are well done.—Professor Penhallow's "Mechanism of Movement in Cucurbita, Vitis, and Robinia" ("Proc. and Trans. Royal Soc. of Canada," vol. iv., 1886) treats of the tendril-movements of the first and second, and leaf-movements of the last. Three plates accompany the paper.—The "Additional Notes upon the Tendrils of Cucurbitaceæ" (*Can. Record of Science*, October, 1886), by the same author, continues the work in the order mentioned. Twenty-two species belonging to nine genera were under observation. The principal inquiry in this paper was that relating to the strength of tendrils, or of the spirals which they form.—B. D. Jackson gives an account, in the March *Journal of Botany*, of the new "Index of Plant Names," now under way. It is the intention to make a complete index of all genera and species of Phanerogams, so as to give "a view of the actual state of botany at the end of 1885."—The principal article in the March *Botanical Gazette* is one by Dr. Gray on Delphinium. It is an "essay at a rearrangement of our species," and is submitted in the hope of eliciting from botanists such observations and criticisms as will either confirm or invalidate the characters used.

ENTOMOLOGY.¹

The Joint-Worm in New York.—Twenty-five years ago *Isosoma hordei* did a great amount of injury to wheat, barley, and rye in this State; in some localities the yield was reduced fully fifty per cent. But during recent years this insect has attracted almost no attention. The present generation of farmers do not even know the characteristic signs of its ravages. There are, however, indications that the causes that have kept it in check, whatever they may be, are ceasing to be effective. And it is more than probable that unless care is exercised by the grain-growers of the State, there will be a repetition in the near future of the great losses of a quarter-century ago. The insect has already become very abundant in the northern part of Tompkins County. But I am not aware that the farmers even suspected its presence until their attention was called to it at a recent farmers' institute. The proprietors of a paper-mill at Ithaca have found that the straw received from certain localities is unfit for making paper, owing to the solidification of considerable portions of it by the injuries of this insect. In one lot of straw received from

¹ This department is edited by Prof. J. H. COMSTOCK, Cornell University, Ithaca, N. Y., to whom communications, books for notice, etc., should be sent.

a packer at Lake Ridge one-twenty-fifth of the straws were infested, and the straw received from another locality was very badly injured. The matter is certainly worthy serious attention. Articles published by Cook and by Riley in the *Rural New-Yorker* some time since indicate that this pest is also increasing unduly in Michigan and in Ohio.—*J. H. Comstock.*

Relations of Ants and Aphids.—The great benefits derived by ants from plant-lice have been long known. Many species of ants obtain a considerable proportion of their subsistence from Aphids and allied insects, honey-dew constituting the chief part of their food. But in what way the plant-lice profit by this association is probably only partially understood. The slight amount of protection afforded by the ants in occasionally driving insectivorous insects away from colonies of Aphids can hardly be sufficient to account for the development of the apparatus for excreting honey-dew. The fact, now well known, that certain ants collect and preserve in their nests the eggs of Aphids during the winter, indicates that there are more important relations between the two groups of insects than appear at first sight. And this is confirmed by the recent discovery by Professor Forbes that the corn plant-louse (*Aphis maidis*) is strictly dependent on an ant (*Lasius alienus*). This ant in the early spring mines along the principal roots of the corn, collects the wingless lice that have hibernated in the earth and conveys them into its burrows, and there watches and protects them. Experiments indicate that the plant-lice are unable to establish themselves upon the roots of corn without the aid of ants, even when placed in great numbers at the base of the hill of corn.—*J. H. C.*

Dipterous Larvæ in *Sarracenia purpurea*.—Dr. Riley has recorded (*Canadian Entomologist*, vol. vi. p. 209) some interesting observations concerning a flesh fly (*Sarcophaga sarraceniæ* Riley), which lives in its larval state in the liquid contained within the leaves of the Southern pitcher-plants, *Sarracenia variolaris* and *S. flava*, subsisting upon the dead bodies of the insects caught by the plants. It may be of interest to record that the same or a similar species inhabits the watery liquor contained within the leaves of the common Northern pitcher-plant, *S. purpurea*. While taking a vacation in the pine-wood regions of Northern Michigan (Missaukee County) last August, I found this interesting plant very abundant in the swamps and marshes. About ten per cent. of the leaves contained larvæ that agree with the figure and description of the larva of *S. sarraceniæ*, but unfortunately I was unable to rear the fly. Many of the leaves contained circular holes, out of which some of the larvæ had doubtless emerged to pupate. When the water contained within the leaves was emptied into a glass vessel, these Sarcophagous larvæ could

be easily seen swimming about in search of food and attaching themselves to any plump carcass that came in their way. When placed in ordinary commercial alcohol they would live between three and four hours.

As is well known, the prevailing color of the leaves of this plant is a livid red, and it is worthy of note that the commonest of the larger insects found within them belonged to that family which is said to be especially attracted by this color,—the Vespidae or wasps. It is probable, also, that this color may have some attractive influence over various two-winged flies,—including the parents of the larvæ mentioned above.—*Clarence M. Weed, Champaign, Ill.*

Bacteriological Studies in Arthropods.—M. E. G. Balbiani^{*} finds that saprophytic bacilli, when inoculated into the blood, are pathogenic for a large number of Arthropods. Death follows in from twelve to forty-eight hours, according to external temperature, number and origin of spores, size, age, and susceptibility of the subject. They die with all of the symptoms which characterize the disease known as “flacherie” in silk-worms, a malady determined by the development of various species of bacteria in the organism. Insects of the different orders are not equally susceptible; those which contain a small quantity of blood in proportion to the mass of the body (Lepidoptera, Diptera, Hymenoptera) are killed more rapidly and surely than those in which the relative proportion of blood is greater, and (above all) in which the blood is richer in corpuscles; this is specially the case with the Gryllidæ.

The resistance is due to the corpuscles seizing by their pseudopodia on the bacilli, and to the elements of the pericardial tissue, which seize on and destroy the poisonous organisms. This identity in mode of action is ascribed to the genetic relation which exists between the two kinds of cells. Death is delayed if the spores are kept for more than six years in a state of desiccation.—*Four. Roy. Micr. Soc.*, 1887, p. 70.

Ants and Ultra-Violet Rays.—Whilst Sir J. Lubbock considers that ants perceive the ultra-violet rays by means of their eyes, Graber finds, by removing these organs from Tritons, etc., that it is by the skin that these rays are perceived. Prof. A. Forel has made experiments in order to answer the question whether ants perceive these rays by means of their eyes, or by the skin; and he finds that it is mainly by the former organs, but admits that “photodermatic” perception may accompany the optic sense. *Camponotus ligniperdus* and *Formica fusca* served for his experiments, and a “solution d’esculine” was used for absorbing the ultra-violet rays.—*L. c.*, p. 73.

^{*} Comptes Rendus, ciii. (1886) p. 952–54.

Light-Perception by Myriapods.—Fourteen years ago Pouchet showed that muscid larvæ without eyes were still sensitive to light, and Graber (as indicated above) has recently in some striking experiments extended the same conclusion. Prof. F. Plateau¹ gives a careful historical survey of what is known in regard to light-sensitiveness among invertebrates, and reports the result of his own researches on blind Myriapods.

His method of experiment was manifold. That of Pouchet, that of Graber, and two other modifications were employed in order to determine whether the blind Myriapods were able to perceive light, while in another series M. Plateau sought to determine the rapidity of perception.

His chief results are summed up as follows: The blind chilopod Myriapods perceive the daylight, and are able to choose between it and darkness; in the chilopod Myriapods provided with eyes, and in those without these organs, a considerable time must elapse before the animals perceive that they have passed from relative or complete obscurity to daylight; the length of this period is not greater in the blind Myriapods than in those with eyes; owing to the general slowness of perception, blind Myriapods, although sensitive to light, may cross a dark space of small extent without perceiving it, or being able to find it again when they have left it; the rapid search for a hole in the soil is explicable, not only as a flight from light, but as an expression of the necessity for a damp environment, with which the greater part of the body may be in direct contact.—*L. c.*, p. 76.

The Hessian Fly in England.—At a meeting of the Entomological Society of London, held December 1, Miss Elenor A. Ormerod read a paper and exhibited specimens of the Hessian Fly (*Cecidomyia destructor*) taken in Hertfordshire, England. The specimens undoubtedly belonged to this species, as they had been compared with authentic American and Austrian examples.

Function of the Palpi in Chilopods and Spiders.—Felix Plateau has recently investigated the question of the function of these organs, and has published the account of his experiments in the *Bulletin* of the Zoological Society of France (1886, p. 512). He reviews the previous opinions on the subject, and experimentally demonstrates that in *Lithobius*, etc., they are used neither as organs of sense nor in the capture of food. He assigns them the function of cleaning the antennæ. The so-called palpi in the male spiders, as is well known, serve to convey the spermatozoa to the female reproductive organs. Of the functions of these organs in the females almost nothing is known. Some have regarded them as sensory, and have described organs of smell upon

¹ Jour. de l'Anat. et de la. Physiol., xxii. (1886) pp. 431-57.

them. Some consider them as of use in the capture of food, and others think they play a part in the building of a web. Plateau's experiments were upon five species belonging to as many genera. The results were that these species, when deprived of their palpi, spun normal webs and captured their prey as well as their un-mutilated fellows. He concludes that these appendages are to be placed, like those of the mandibulate insects, in the category of useless organs. His experiments on scorpions and Phalangium gave negative results, as these forms refused to feed. Plateau thinks that the primitive form from which both fossil and recent Arthropods have sprung varied but little from an embryonic type. The segments of its body were all similar in shape and size, and each bore a pair of many-jointed appendages. In development some of the anterior segments became modified, the basal joints of the appendages became concerned in manducation, while their distal joints, now relieved of ambulatory functions, are in various stages of atrophy and have lost their original meaning. In some cases (Arachnida) they have taken a new function.

Necrology.—M. Maurice J. A. Girard died the 8th of September last, in his sixty-fourth year, at Lion-sur-Mer (Calvados). Dr. Girard was the author of several important entomological works. The chief of these is his "Traité Élémentaire d'Entomologie." This was completed only in 1885, and comprises three large volumes and an atlas of many plates.

M. Jules Lichtenstein died on the 30th of November last, at Montpellier, France, at the age of sixty-eight. M. Lichtenstein was a vineyard proprietor, and made a special study of the habits of the Grape Phylloxera, and of allied Aphids. He was one of the most prominent and original of the French writers on these subjects.

Edgar, Freiherr von Harold, died August 1, 1886, at Possenhofen, Bavaria. He is best known to American entomologists as one of the authors of the "Catalogus Coleopterorum" and editor of the "Coleopterologische Hefte."

Entomological News.—The "First Supplement to the List of Coleoptera of America, North of Mexico," by Samuel Henshaw, is published in the *Entomologica Americana*, vol. ii., No. 11. The names of two hundred and thirteen additional species are given, and many changes indicated.—The *Canadian Entomologist* for December contains the conclusion of an important article by Grote on the Geographical Distribution of North American Lepidoptera. Several very interesting tables are given.—At a meeting of the Entomological Society of London on December 1, Mr. Poulton exhibited the bright green blood of the pupa of *Smerinthus tilix*, which is one of many Lepidopterous pupæ

possessing a chlorophyll-like pigment (called metachlorophyll by Mr. Poulton) in the blood. By means of a micro-spectroscope the most characteristic absorption-band of the pigment, together with its resemblance to chlorophyll, was shown.—The well-known American entomologist, Mr. A. R. Grote, has been presented by His Highness the Duke of Saxe Coburg-Gotha (brother-in-law of Her Majesty the Queen) with the large Silver Medal, *Princeps Musarum Sacredos*, for Art and Science.—The January number of the *Wiener Ent. Zeit.* contains the second and concluding part of the Supplement to the Monograph of the Cæstridæ by Dr. Brauer. In this part the characters of the fully-developed larvæ are discussed, and an analytical table of the genera given. There is also an analytical table for determining the genera of the adult insects.

ZOOLOGY.

Fauna of Novaia Zemlia.—Anton Stuxberg contributes to the fifth volume of the scientific results of the "Vega" expedition a review of the fauna of Novaia Zemlia. Of the sixteen mammals he enumerates two lemmings, one wolf, two foxes, the polar bear, and the reindeer as terrestrial; all the others are marine. The birds number forty-one. The fishes are not enumerated, but one is struck with the relative proportions of the different orders of Hexapods. Of these the Diptera number eighty-two, the Hymenoptera forty-six, and the Collembola sixteen out of a total of one hundred and fifty-four. The only Myriapod is a species of Lithobius. The Arachnids number forty-eight. Of the Crustacea only the Malacostraca are included. Of these there are ninety-six, sixty-one of this number being Amphipods. The Chætopods are one hundred and twenty-three in number, the true Molluscs one hundred and twenty, the Echinoderms thirty-seven. The total is seven hundred and forty-two species.

Pelagic Fauna of German Lakes.—Dr. Otto Zacharias read a paper at the late meeting of German naturalists and physicians in Berlin on the pelagic fauna of the North German lakes. The results of the exploration of fifty-six bodies of water were that there was a great similarity between their pelagic fauna and that of the Swiss and Northern Italian lakes. Some novelties were obtained: a new species of Ceriodaphnia, two of Bosmina, etc. The catalogue of his collections shows that there is a considerable similarity between these North German lakes and those of our Northern States, so far as pelagic invertebrates are concerned.

The Structure of Fungia.—Mr. Gilbert C. Bourne, who has been enabled by a grant of funds to visit the East Indies, gives in the January number of the *Quarterly Journal of Microscopical Science* (xxvii. p. 293) an account of the structure of a species of